Bird use of hedgerows in southwestern British Columbia: effects of hedgerow composition, landscape composition and biogeography across scales

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Hedgerows provide habitat in agricultural landscapes. Our objective was to determine which local or landscape habitat features were most strongly associated with the distribution and abundance of breeding and wintering birds among hedgerows in the Fraser Delta. We studied bird assemblages in hedgerows of differing composition and canopy cover in 4 different areas. Landscape attributes were determined by measuring features in orthophotos. Hedgerow composition, biogeography and distance to water mattered little to the birds compared to landscape composition. Landscape composition dominated the top models for all but one species in the breeding season, all species in the winter and species richness in the winter. Forests had both a positive and negative influence on the abundances of different bird species. Ditches were the strongest associate of species richness in winter. Urbanized landscapes with impervious surfaces were generally avoided by most species in both seasons. Relative to landscape, hedgerow composition mattered little. The only two species for which hedgerow composition mattered, Black-capped Chickadees and Downy Woodpeckers, as well as species richness, were negatively associated with hedgerows of native shrubs mixed with blackberry. Overall, hedgerows were more important in the breeding season. Most winter species were not associated with any hedgerow type.